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ABSTRACT

Alcohol education and rehabilitation programs are widely accepted as an integral part of the enforcement of drunk driving laws; however, careful evaluations of these programs generally fail to show subsequent beneficial effects on traffic crashes. This fact is due in part to the many barriers to conducting sound program evaluations and in part to the existence of a number of other factors that affect how successful educational and rehabilitative efforts are likely to be. Included among such factors are the great difficulties associated with changing human behavior, the growing evidence of biological differences in the response to alcohol, and the societal context in which rehabilitation takes place. Alcohol advertising, government dependence on alcohol revenues, and the portrayal of alcohol consumption on television all combine to create a message that contradicts the thrust of alcohol education and rehabilitation programs. Programs to rehabilitate the drinking driver will be most effective when it is recognized that society as a whole is instrumental in contributing to the problem of drunk driving and when it is acknowledged that one unit of alcohol education cannot begin to counteract effectively years of exposure to messages contrary to the content of such education and rehabilitation programs. (MN)

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SPITTING IN THE OCEAN:

Realistic Expectations of the Impact of Driver Alcohol Education and Rehabilitation Programs on the Problem of Drunk Driving

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Introduction

There is at last a growing awareness of the magnitude and seriousness of the motor vehicle injury problem in the U.S. today. A recent study examined the incidence and economic costs of cancer, motor vehicle injuries, coronary heart disease, and stroke (Hartunian, Smart, and Thompson, 1981). It was found that the incidence, that is, the number of new cases, of cancer plus coronary heart disease and stroke, came to a little over one and a half million cases each year in the U.S. For motor vehicle injuries the number was over four million. When the economic costs associated with these new cases were examined, it was found that motor vehicle injuries ranked second only to cancer.

The costs are especially high because motor vehicle injuries strike the young disproportionately. They are by far the major threat to life for children, and for young people the problem is even greater. A recent report from the U.S. Surgeon General showed that in over the last 20 years all age groups in this country have experienced an increase in life expectancy with the exception of our youth age 15 through 24. This age group now has a higher death rate than 20 years ago, and the major cause is motor vehicle injuries (US Department of Health Education and Welfare, 1979). Such injuries account for about half of all new cases of paraplegia and quadriplegia and are a major cause of new cases of epilepsy. When young people are afflicted by these conditions, there is a long term commitment of expensive health care resources. Furthermore, motor vehicle injuries are by far the leading cause of serious injury and death in the peacetime military. Even in the Navy the majority of deaths are from motor vehicle injuries!

The role of the alcohol in this major health problem has been well documented. Although there is some disagreement as to the exact extent of alcohol involvement, most estimates are that roughly one half of all fatal motor

vehicle crashes involve alcohol. Although a significant portion of these involve drunk pedestrians, the majority involve drivers who are at or above a blood alcohol concentration (bac) of 0.10 percent, the level used in defining drunk driving in most states.

Federal Involvement in Drinking-Driving Countermeasures

In recognition of the seriousness of the problem, in 1969 the federal government launched a nationwide program to provide financial and technical assistance to communities to develop and implement a systematic program to combat drunk driving. Ultimately 35 such programs were implemented throughout the nation. The programs focused on three major areas, namely, identification of problem drinkers on the road, making informed decisions as to the nature of the drinking-driving problem, and, finally determining the most effective action to prevent a future incident. Eventually five categories of countermeasures developed from these Alcohol Safety Action Programs (ASAPs), including enforcement, judicial and legislative, presentence investigation and probation, rehabilitation, and public information and education (Jones and Joscelyn, 1978).

Although many efforts have been made to evaluate the impact of the ASAPs, virtually all have suffered from insufficient information and/or inadequate control over the variables of interest. While earlier studies looked promising, particularly in regard to increased knowledge and improved attitudes, the most rigorous evaluations that focus only on those studies meeting stringent design criteria, have found that the education and rehabilitation component of ASAP fails to show an impact on subsequent crashes (National Highway Traffic Safety Administration, 1974; Nichols, Weinstein, Ellingstad, and Struckman-Johnson, D.L., 1978).

Following the ASAP activities there was reduced federal involvement in the alcohol area, but more recently the federal government is once again emphasizing the drinking-driving problem. In contrast to the earlier ASAP effort, current

activities are occurring in a social climate that is highly sensitized to the issue. Almost simultaneously citizen groups concerned about drunk driving have sprung up in different parts of the country. These groups, such as RID (Remove Intoxicated Drivers) and MADD (Mothers Against Drunk Drivers), have established local chapters throughout the nation that provide vocal citizen support for drunk driving countermeasures. These groups undertake activities that probably could not have been conducted by the professionals in the area, such as monitoring the performance of judges and district attorneys and publicizing the results in the media. In an effort to respond to the demands of such organizations, as well as to attack a major health and safety problem, legislators have rushed to enact stronger anti-drunk driving legislation. However, in recognition of political realities, their measures usually provide some kind of "safety valve," with alcohol education schools almost always included as a part of the proposed solution, often being offered in place of total license suspension.

Alcohol Education and Rehabilitation Programs

North Carolina, like other states, has a statewide alcohol and drug education program for persons convicted of DUI. Our Center has recently completed an evaluation of the effectiveness of these schools (Popkin, Lacey, Li, Stewart, and Waller, 1983). While we found highly significant increases in knowledge about alcohol and driving, we found no reduction in subsequent DUI offenses. On the contrary, the persons assigned to the schools showed consistently higher rates of subsequent arrest when compared to persons whose records were comparable but who were processed just prior to the enactment of the new program or who were not assigned to the school once it was available. Evaluations of other alcohol education programs have reported similar findings. While some programs have shown reductions in subsequent violations, especially

for social drinkers as opposed to problem drinkers, no program has shown significant reductions in crashes (see Nichols, 1981).

Why have so many of the alcohol rehabilitation programs failed to prove effective in reducing crashes when subjected to careful evaluation? In our own state we believe that much of the problem lies with the fact that persons assigned to the school were eligible for driving privileges sooner than those persons who were not assigned to the schools. Hence the persons attending the schools were driving more and thus had a greater exposure to risk of detection. However, even when analyses were confined to those time periods when both groups should have had equivalent driving privileges, the rehabilitation group fared significantly worse. A California study (Hagen, McConnell, and Williams, 1980) has shown driver license suspension to be more effective than assignment to an alcohol school in reducing subsequent alcohol-related offenses once both groups have full driving privileges. Salzberg and Hauser (1981) have reported similar findings in the state of Washington. In North Carolina the alcohol school was offered in place of a known deterrent and thus would have to have been more effective than suspension to show a difference. In effect, we withheld the best substantiated countermeasure known to date. Unfortunately most alcohol rehabilitation programs divert DUI convictees from license suspension rather than using the education experience in conjunction with license suspension.

Barriers to Sound Evaluation of Rehabilitation Programs

When we focus on those persons undergoing rehabilitation treatment, there are difficulties in conducting sound evaluation. First, there is the problem of assignment to treatment. Good research design flies in the face of clinical concerns about disposition. Of course we should assign to the program those persons who are most likely to benefit from it. But if we do, how can we ever tell whether our program is effective? With what do we compare our findings?

These problems exist even before we consider problems of differential dropout from the program. Good evaluation of treatment and rehabilitation programs may require the authority for random assignment to treatment and to no treatment groups. This technique raises many thorny issues that have to be addressed, e.g., the question of third party liability and the ethics of using human subjects in research. There may be a need for legislative authority in this regard.

Second, there is the problem that drunk driving violations and/or crashes are relatively rare events so that our evaluation is likely to suffer from insufficient data. Such infractions are a relatively insensitive outcome measure, yet they are the "bottom line" for any rehabilitation program.

Third, persons who drink and drive do not represent a homogeneous population. The reasons for the behavior are many. In a rehabilitation program it may not be possible to address all factors that are crucial to the the participants. Social drinkers and problem drinkers may respond differently to a treatment program and should be differentiated for purposes of evaluation.

Fourth, evaluation often occurs as an afterthought, yet it is important that, if evaluation is to occur, it be built into the program from the beginning so that assignment to treatment and collection of the necessary data can be accomplished satisfactorily.

Fifth, the evaluation is frequently undertaken with the expectation that it will prove the program worthwhile, yet sound evaluation must be as independent of the program as possible. This point is not a contradiction of the previous one, but rather emphasizes that for evaluation to be objective it must not be colored by the pressures or expectations of the program administrators. One of the major difficulties with the ASAPs was that evaluation was occurring in a context in which efforts were being made to persuade the local community to assume financial responsibility for the program because it was so effective. Honest evaluation may fail to support programs that are highly cherished by

important officials. However, if there is to be room for innovation, there must also be room for the possibility of failure. If there is no room for failure, it is extremely difficult if not impossible to conduct objective evaluation.

Sixth, the results of the evaluation may create political problems for proponents of the problem. Because innovation and evaluation may not always lead to success, government officials (and others associated with the program) should not be committed to specific solutions but rather to the importance of the problem and of finding a successful countermeasure (Campbell, 1969).

Seventh, many attempts to evaluate suffer from poor methodology, and the results do not support the conclusions reported. Because good evaluation is not a simple task and because many localities do not have the necessary expertise to conduct valid evaluation, there should be resources where such localities could turn for assistance in developing their programs and evaluation designs.

Eighth, evaluations of programs are usually based on what the program is supposed to cover. Yet it cannot be assumed that because certain information, activities, and procedures are included in a teaching guide that they are actually being utilized. Unless the materials are used, the evaluation will not be meaningful. Even when instructors are trained and certified, they may be conducting their classes very differently. Good evaluation requires that the program be monitored to insure that the intended activities are actually occurring. It should also be noted that simply because a school is labelled as an alcohol education school or an alcohol rehabilitation program does not guarantee that the program is in any way comparable to other programs that may carry the same label. Hence at the very outset we should recognize that when we are evaluating "alcohol education" or "rehabilitation" programs, we may not always be evaluating the same thing.

Factors Relevant to Success of Alcohol Programs

Realistically what can we expect or how much should we expect from the typical alcohol education or rehabilitation program? In addition to the many barriers to sound evaluation, there are further considerations that are relevant to how much we can expect these programs to accomplish. These include the inherent difficulties in changing human behavior, the societal context in which the rehabilitation programs occur, and the potential role of biological factors.

Difficulties in Changing Human Behavior. We should be totally realistic about how much behavior change can be expected from any program that consists of eight, ten, twelve, or even twenty or more hours. The average bac for persons arrested for DUI in North Carolina is 0.15 percent and many are well above 0.20 percent. It is possible that the drunk driving event that led to the arrest was an isolated instance, but the probability is low. The best estimates of the probability of detection for any given drunk driving trip are of the order of one in two thousand to perhaps as low as one in two hundred (Borkenstein, 1975; Beitel, Sharp, and Glauz, 1975). It is likely that the person arrested has engaged in the behavior repeatedly before being detected.

In the highway safety field generally, efforts to change human behavior through education have not been noted for their success (Robertson, 1975; Robertson, Kelly, O'Neill, Wixom, Eiswirth, and Haddon, 1972; Robertson and Zador, 1978). Perhaps there is something to be learned from studies of psychotherapy, a process that may be considered somewhat analogous to rehabilitation efforts but usually involving voluntary participation and hence motivation on the part of the patient or client. The process may last months or even years and usually carries with it a significant cost in time and money. Yet it has been only recently, through the use of highly sophisticated analytic

techniques and focusing primarily on specific symptoms of milder forms of disorders, that it has been possible to show significant benefits of psychotherapy in contrast to no treatment at all (Bergin and Lambert, 1978). In contrast to psychotherapy, the typical alcohol rehabilitation program consists of eight to ten hours and may have no requirement for successful completion other than that the person be present each session. Furthermore, assignment to the school is frequently handled through the court, and failure to complete the course may have consequences for one's licensure. The motivation for attendance may not have a great deal to do with bringing about major changes in well established behaviors. Even the best designed program would have difficulty showing a significant impact on persons whose motivations may be suspect at best and who are exposed to the program for such a relatively short period of time.

Societal context variables. Whatever the rehabilitation program is offering must be understood in relation to the greater societal context in which it is occurring. Education may be considered to be the sum total of all the information and messages brought to bear on an individual, including the examples set by other significant persons in his or her environment, rather than simply the information that is presented formally in a classroom situation. Viewed in this manner, one could conclude that we have very effective alcohol education in our society today and that it is accomplishing exactly what much of it is designed to accomplish.

Alcohol advertising - At the present time in the U.S. the alcohol industry is spending approximately one billion dollars a year on advertising (Jacobson, Hacker, and Atkins, 1983). This figure does not reflect other monies that may go for "public relations" and that fund activities that promote good will but do not technically constitute advertising. It should be noted that the industry

observes self-imposed restrictions on where advertisements are placed (hard liquor commercials do not appear on television) as well as what appears in an ad (on television commercials people are not shown actually consuming beer or wine). However, even within these restrictions there is every indication that the advertising is quite effective. Of course this is as it should be, since the industry is in a position to hire the best minds on Madison Avenue to promote its products.

Children in our society spend more hours watching television than they spend in school (Singer, 1983). By the time a young person is old enough to drive he or she has been exposed to the industry's messages for approximatey 16 years. Furthermore, messages are broadcast during prime time television viewing, including during weekend sports events, rather than at 2:00 or 3:00 in the morning, a favorite time for public service announcements.

A study funded by the federal government examined the content and effects of alcohol advertising (Atkin and Block, 1981). The report acknowledges the limitations in the procedures used and cautions the extent to which the findings should be generalized. Nevertheless the study is to date the most comprehensive undertaking of its kind available to the general public. (So far as I can determine, the report submitted to the government by Atkin and Block has never been distributed. It can, however, be obtained through direct request if one is aware of its existence.) In it examination was made of advertising messages and information was collected from a nationwide sampling of persons who had demographic characteristics similar to the wider population but who were not selected according to strict random probability sampling. While most of the persons surveyed were between the ages of 12 and 22, a smaller sample of adults beyond that age was included.

Based on self reports from the persons surveyed, it was found that the alcohol advertisements appearing on television and in magazines and newspapers communicate messages that associate drinking with "the good life," sports heroes, beautiful women and handsome men, fancy cars, good times, wealth, and success. The persons who reported the greatest exposure to alcohol advertising were also more likely to report drinking more, or, in the case of those who had not yet started to drink, more likely to report that they expected to drink. Furthermore, persons who reported more exposure to advertising were more likely to report combining alcohol with driving, although there were no differences found for other types of hazardous activity. Generally the effects of the advertising appear to be greatest for young people (including early teens) and problem drinkers. However, the authors point out that the associations between exposure to alcohol advertising and drinking behavior do not necessarily indicate a causal relationship or, if a causal relationship exists, in which direction it operates. It could be that persons who drink more are more sensitive to advertising and seek it out to a greater extent.

DeFoe and Breed (1979) have examined alcohol advertising in college newspapers and report that over half of all national advertising in the 32 papers examined was devoted to alcoholic beverages, mostly beer. Furthermore, the ratio of alcohol advertising to that for soft drinks was of the order of 25 to one.

Brenner has pointed out the power of advertising in influencing almost every aspect of our lives:

> "One of our most important industries in the United States is advertising. This is the source generating most of what we eat, wear, drink, how we conduct our sex lives and our most private as well as public behaviors. The people who serve in these industries are . . . among our most talented and sophisticated social researchers. They understand social phenomena extremely well, and

> they include psychiatric and psycholgical graduates of our behavioral sciences as well as the sociological wider-scale movements. It is these people who sell us nearly everything we buy and have a lot to do with the ideologies we utilize, the people we vote for, etc. This is all well known to us, but what is not apparently appreciated to any extent is that these are highly manipulable tools; we use them all the time. This is how the industry is arranged. This is how we normally bring forth the product of industry and burden the pockets and the bodies of the people who live in the society." (1977, p. 34).

Wallack (1981) describes the inequality in the battle to counter the messages communicated by the alcohol industry:

> ". . . the government attempts to counter some of the anti-health education messages by funding prevention and public information programs. Compared to the $1 billion of tax deductible alcoholic beverage advertising, the federal budget for providing accurate information on this topic is miniscule. For example, the total prevention/public information budget of the National Institute on Alcohol Abuse and Alcoholism amounts to no more than $12 million at best. Further, public information mass media campaigns are restricted by federal regulations that prohibit the purchase of media time or space for the dissemination of public health messages." (1981, page 14).

Mosher and Wallack (1979) have proposed ways in which alcohol advertising could be reformed within existing regulatory authority. Indeed, they point out that the Bureau of Alcohol, Tobacco, and Firearms (ATF) has never really exercised its authority to prevent misleading advertising. In contrast, the Federal Trade Commission (FTC) has taken major steps to limit misleading or irrelevant appeal in advertisements of other products. According to Mosher and Wallack, the authority of ATF is at least as great. In particular, they advocate providing information on the health risks associated with excessive alcohol usage, although they also make specific recommendations, such as eliminating appeals to sexual desires or allusions to social success or acceptance. They explain,

> "The point is <u>not</u> the relation between alcohol advertising and negative consequences <u>but</u> the lack of a relationship between the consumption of alcohol and personal, social, or sexual success."

Alcohol in television programming - Much of the publicizing of alcohol is not even funded by the alcohol industry but rather is communicated through the media in programming. A number of studies have examined the use of alcoholic beverages on television. In contrast to smoking or taking drugs, drinking alcohol occurs with startling frequency (Greenberg, 1981). Examining the top ten prime time fictional series from the 1979-1980 television season, the author found that the frequency of drinking ranged from three to 16.5 incidents per hour for an average of 8.13 separate incidents per hour. For a show to rank in the top ten for an entire season it must attract from 25 to 35 million viewers per episode. It is inevitable that many of these viewers are children and youth.

Breed and DeFoe (1981) examined the manner in which drinking is portrayed on prime time television. Focusing on the top 15 situation comedies and the top 15 one-hour dramas for the 1976-1977 season, they found that more than half of the drinking was potentially problematic. While most drinking occurred during leisure hours, in 25 percent of the cases it occurred during or just before work. By far the most frequent reason for drinking was as a response to a crisis, accounting for 61 percent of the total drinking observed. In many instances driving is shown after drinking, while in other cases the drinker was shown in another location and the only way he could have gotten there was to drive. In most instances the drinker is a "good guy" who does not experience any serious consequences of his drinking behavior.

Straus recognizes the potential problems associated with such programming when he writes:

> "Societal pressures toward conformity in drinking too much are supported by the frequency with which heavy drinking is depicted as associated with success in fiction and the modern mass media. Over and over again our population is exposed to the image of beautiful women and handsome men consuming what for most people would be too

much alcohol and then proceeding to be successful in outwitting their adversaries, driving their cars at high speed in heavy traffic or on mountain roads, catching a criminal, or making magnificent love." (1977, pp 23-24)

Wallack quotes comments from Lazarsfeld and Merton that were written over thirty years ago and are as applicable today as then:

> "Since the mass media are supported by great business concerns geared into the current social and economic system, the media contribute to the maintenance of that system. This contribution is not found merely in the effective advertisement of the sponsor's product. It arises, rather, from the typical presence in magazine stories, radio programs, and newspaper columns of some element of confirmation, some element of approval of the present structure of society. And this continuing reaffirmation underscores the duty to accept (p. 503)." (In Wallack, 1981).

While any individual advertisement or drinking incident on television is unlikely to have a significant effect on the viewer, it should be recognized that the continual presentation of such material does communicate a powerful message, namely, that drinking alcohol (in response to a crisis, in social situations, before driving, etc.) is an integral part of American society today. What limited data are available do indeed suggest that most adults in our society drink and at some time they combine it with driving (U.S. Department of Transportation, 1968). Yet the extent to which drinking behavior is depicted on television is far greater than what is reported in any survey of the general population (Moore and Gerstein, 1981; DeLuca, 1981). The media are communicating a "norm" that does not exist in the real world at the present time.

Pricing of alcoholic beverages - Another factor that may influence the success or failure of rehabilitation efforts concerns the pricing of alcoholic beverages. In the last several decades the differential costs of soft drinks and beer have virtually disappeared. Thirty to forty years ago a beer cost five to six times as much as a soft drink, while today there are instances in which

the beer is actually less. Taxes account for a major portion of the total cost of alcohol. The last change in federal tax rates on alcoholic beverages occurred in 1951 (Moore and Gerstein, 1981). Between 1960 and 1980 the price of distilled spirits relative to the price of all other consumer goods has decreased 48 percent. The figures for beer and wine are 27 percent and 20 percent, respectively (Cook, 1981). This reduction in the real cost of alcohol makes it a more feasible alternative to non-alcoholic beverages, especially for the young person.

There is clear evidence that the price of alcohol influences the amount of consumption of alconol (Moore and Gerstein, 1981). As the price increases, the per capita consumption decreases. Of course, this information alone does not indicate where the reduction in consumption is occurring. However, other studies show an inverse relationship between per capita consumption of alcohol and cirrhosis of the liver, as well as motor vehicle fatalities (Cook, 1981). Such evidence suggests that the pricing of alcohol may differentially affect the drinking behavior of persons who have problems with alcohol (e.g., problem drinkers, young males) and in turn affect the societal costs associated with inappropriate drinking.

Dependence of government on alcohol revenues - Many factors also influence the decision maker in shaping social policy. While everyone agrees that we should get the drunk driver off the road, just how this desirable goal should be accomplished is much less likely to lead to agreement. An example comes from North Carolina where the legislature recently enacted The Safe Roads Act that completely revises all previous drinking and driving statutes in an attempt to strengthen them. The age for purchasing beer and unfortified wine was raised from 18 to 19. However, when the State Senate considered the question of further raising the age from 19 to 21, the bill was tabled in committee. A major consideration in this decision was that enactment of the bill would lead

to a loss of approximately three and a half million dollars in annual revenue to the state. With the state budget already strained to the limit and state employees pressuring for pay increases, the legislature was not willing to enact a bill that would lead to revenue losses of that magnitude. (Incidentally, the best estimates indicated that the bill would have saved the lives of approximately thirty 19 and 20-year-olds each year, with a conservative estimate of $200,000 per life, for a total savings of six million dollars per year. However, those dollars would have come mostly from other pockets and would not have had such a direct impact on the state budget. It is not known whether the legislators had access to this information at the time they made their decision. Generally they are more familiar with information concerning direct costs to the state than with the overall societal cost implications of the decisions they must face.) Essentially the same scene has been enacted in state after state. Thus, even though legislatures may genuinely want to remove the drunk driver, they are sensitive to other issues that have to be confronted at the same time.

These societal factors are addressed because I believe they may be the most important determinants of how much we can expect any alcohol rehabilitation program to accomplish. In our society the young person, and the young male in particular, is bombarded with messages and social pressures to drink and to some extent to drive after drinking. At best, adolescence is a time of uncertainty about one's identity and where one is going in life. Insecurity and anxiety in social situations are also frequent concomitants. Moreover, adolescents are usually inexperienced in both drinking and driving. When we try to communicate the hazards of combining alcohol with driving, we have to realize that we are up against formidible competition.

Potential Role of Biological Variables. There is another dimension of the problem that is not usually considered in developing public policy and that is

the growing evidence that there are real biological differences in how vulnerable different persons are to alcohol addiction. Anyone can become an alcoholic but it appears that some persons may be more susceptible than others. Animal research on this issue has been conducted for at least 25 years even though it is extremely difficult to get most laboratory animals to ingest alcohol voluntarily. However, it has been found that different inbred strains of mice that show marked differences in willingness to consume alcohol also show differences in the way the alcohol is metabolized. More recent studies of human populations have identified biochemical differences that appear to be associated with the effects of alcohol ingestion (Agarwal, Harada, and Goedde, 1981; Cloninger, Bohman, and Sigvardsson, 1981; Ewing, 1982; and Goodwin, 1979). Thus, when young people begin experimenting with this drug that is widely touted as being an integral part of "the good life," they do so in ignorance of their own susceptibility to addiction.

Such studies raise additional questions about our current alcohol policies. Alcohol is a major source of revenue to state government. The industry spends huge sums of money to promote its use, while public policy (both governmental and other) communicates messages that may promote drinking or at best convey misleading information (e.g., beer and wine are advertised on television and therefore are not as harmful as distilled spirits). The identification and recognition of the apparent existence of biological factors, as well as the many societal factors that influence the probability of drinking and driving, may make a rehabilitation program more effective. To what extent have these programs examined the many ways in which alcohol is "pushed?" An Oregon judge has put it well, saying, "You could consider the State a major drug pusher that depends on sales for income. Then when someone slips up and uses too much, the same State condemns him and invokes sanctions."

Relationship of Rehabilitation Programs to Total Drunk Driving Problem

Not everyone agrees that reduced crashes should be the basis for evaluating the effectiveness of alcohol education or rehabilitation programs for convicted drunk drivers, and sound arguments can be made in support of such a position. The criteria one uses for determining effectiveness depends upon the goals established for the program, as well as the expectations of others supporting the program. Whether implicitly or explicitly, most such programs have been "sold" to legislators, judges, or others in decision making authority as having some potential for reducing alcohol related trauma on the highway.

Nevertheless, while rehabilitation programs are a necessary part of an overall program to combat drunk driving, realistically they cannot be expected to make any significant impact on the total problem. As indicated earlier, by far the majority of drunk driving trips go undetected. Furthermore, those that are detected vary in the probability of a conviction. In North Carolina we have found that once a crash-related violation occurs, the probability of being convicted for it is associated with race, age, and the age of the vehicle involved (Waller, Lohman, Freeman, Stewart, and Reinfurt, 1983). Nonwhites, persons age 55 or older, and persons driving older vehicles are all more likely to be convicted. While the composition of convicted drunk drivers is heavily weighted toward the middle aged and younger groups, nevertheless older drivers are overrepresented compared to their proportion of the population that is identified as driving under the influence. Of course, in North Carolina being nonwhite, being age 55 or older, and driving an older vehicle may all be considered rough handles on socioeconomic status.

Blumenthal and Ross (1973) found that once a person was arrested for drunk driving, those who obtained legal counsel were four times more likely to be

acquitted and 22 times more likely to have their charges reduced, even though they had worse records to begin with than persons who did not obtain counsel. It is probable that the acquisition of legal counsel is associated with socioeconomic status.

These studies suggest that regardless of age or race, it is likely that the persons convicted are on the whole of lower socioeconomic status than those who are not, even though all were identified as committing the offense.

When probability of detection is so low and when there are systematic biases in who is convicted, it must be recognized that those persons who are processed by the courts and who enter rehabilitation programs are only a very small part of the problem. Based on the best available information, it has been estimated that if every person apprehended for drunk driving this year were totally rehabilitated (a goal far beyond our wildest expectations at this time), the reduction in fatalities next year would be less than six percent (Nichols, 1981). The greater part of the problem must be addressed in some other fashion.

Summary

Alcohol education and rehabilitation programs are widely accepted as an integral part of the enforcement of drinking-driving laws. However, careful evaluations of these programs generally fail to show subsequent beneficial effects on traffic crashes. The reasons for this are many. First, there are a number of formidible barriers to conducting sound evaluations. Second, even when careful evaluations of well conducted programs are possible, there are other factors that affect how successful educational and rehabilitative efforts are likely to be. These include the inordinate difficulties in bringing about

meaningful changes in human behavior, the growing evidence of biological differences in the response to alcohol, and, finally, and perhaps most importantly, the societal context in which rehabilitation efforts take place. Alcohol advertising, the portrayal of alcohol on television programming, the pricing of alcohol, and governmental dependence on alcohol revenues combine to communicate messages that are often contradictory to the thrust of alcohol education and rehabilitation programs. Furthermore, because convicted drunk drivers are only a small part of the drinking driver problem, totally successful treatment would not have a major impact on alcohol related motor vehicle injury.

The rehabilitation of the drinking driver will be most effective when it is recognized that the entire society is instrumental in contributing to the problem. We cannot convict the drunk driver who happened to be apprehended and was not affluent enough to evade conviction and assume that now we are doing something meaningful about the problem. Nor can we send this convicted driver to alcohol education school and conclude that we are now handling the problem in an enlightened manner. The fact remains that driving after drinking is still widely accepted in American society. When we recognize how much money is spent to promote and support the current state of affairs, we have to compare it with what we are spending to combat the problems created by drunk drivng. We cannot expect a unit on alcohol in driver education to counteract the years of alcohol education transmitted through the media. Nor can we expect an eight to twelve hour rehabilitation program to counteract a lifetime of acquired values and behaviors. Realistically what we spend on educating the public about the hazards of drinking and driving is miniscule compared to the dollars committed

to communicating contradictory messages. The young male in particular is caught in the middle of this hypocrisy, and we are failing especially to provide adequate guidelines for this most vulnerable group.

Straus puts it well when he writes:

> " . . . available evidence should lead us to look further at the probability that a very significant number of people who drink too much are drinking what is for them excessively in response to cues, or to clusters of cues, in which these social pressures that stem from outside the individual have a very high priority. I think also that in the life histories of many people who drink too much we are going to find that, in the early stages particularly, social cues for many people have a much higher priority. They may reach a stage where they are giving higher priority to the meaningfulness of alcohol in terms of inner stress or tension reduction. But actually, social pressures themselves cause a large amount of the stress and tension associated with individuals drinking beyond their comfortable capacity. These individuals may then drink to alleviate the anxiety they would feel if they were not to drink, because they wouldn't be one of the crowd, because they wouldn't be accepted, because they would be impolite, because they wouldn't be fulfilling amenities, or because they wouldn't be satisfactorily performing expected behavior in connection with their role as a diplomat, or as a salesman, or as a military officer who has to demonstrate that he can drink like a Marine." (1977, pp. 30-31).

Or, we might add, as a young male who would not be living up to the expectations our society has been communicating to him throughout his lifetime.

At the present time we have exactly the alcohol education that we pay for and until and unless we are willing to make the commitment necessary to bring about meaningful and lasting changes and until and unless we are willing to spend the time and the money and make the societal changes that will be required, drunk driving is likely to continue as a major cause of motor vehicle injury and death.

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